Original Article

An examination of persistence in charitable giving to education through the 2002 economic downturn

Received (in revised form): 6th November 2009

Ke Wu
is Applied Statistician at the Center on Philanthropy at Indiana University.

Melissa S. Brown
is Associate Director of Research and Managing Editor of *Giving USA* at the Center on Philanthropy at Indiana University. Before her career in research, Ms Brown was a professional fundraiser in four organizations, one each in higher education, health, the arts and human services.

ABSTRACT Using three waves of the Center on Philanthropy Panel Study, a module of the Panel Study of Income Dynamics, fielded by the Institute for Social Research at the University of Michigan, we examine characteristics of donors who gave to any level of education in each of the years studied (2000, 2002 and 2004). We find that these persistent donors to education are more likely to have higher income (average of US$142 603 in 2000) and higher levels of education (bachelor's degree or above) than are less frequent education donors and non-donors to education. There is some support for a positive association between persistent giving to education and the number and age of children in the household. There is strong support for positive association between educational attainment and persistence in giving to education and in giving to other secular causes. Implications for fundraising practice and further research topics are discussed.
International Journal of Educational Advancement (2010) **9**, 196–219.
doi:10.1057/ijea.2009.41

Keywords: fundraising; donor renewal; higher education

INTRODUCTION

Despite the severity of recession that began in late 2007, examining household giving to education in 2002, compared with education giving in 2000 and 2004, allows us to determine what characterizes donors to education at any level who persisted in giving in the prior economic downturn in 2002. In this article, we look at persistent

Correspondence: Melissa S. Brown
550 West North Street, #301, Indianapolis, IN 46202, USA

donors to education and compare them with persistent donors to all other secular causes. We segment donors into two groups, those with higher education and those without, to examine persistence in giving to education (all levels) and to other types of secular charities. From this, we may be able to draw conclusions and develop strategies to engage persistent and other education donors during times of economic downturn.

Donations from individuals or households to higher education total an estimated US$15 billion for the 2007–2008 academic year and include the very largest gifts for capital campaigns.[1] The Council for Aid to Education reports that 11 percent of alumni give to their alma maters in a year (2009). In addition to alumni giving for higher education, households may contribute to education at other levels, including primary and secondary schools, whether public, parochial or private. This article considers giving to all levels of education, as the panel data we used here are not restricted to donations to higher education. Findings relate to education giving generally, not to giving to any specific type of educational institution.

Sargeant and Jay (2004) show the importance of the lifetime value of a donor, making renewal rates another important benchmark for the fundraiser working on behalf of an educational organization. While the question of continuing support has been studied at an organizational level, as fundraisers monitor important benchmarks, it has rarely been examined at a sector level. Wu *et al* (2007) looked at persistence in total giving. This is one of the first studies to look at persistence in giving to a particular type of charity.

Understanding more about charitable giving at a sector level is important in part because a donor who did not renew giving to an organization might be giving to another organization in the same subsector instead – switching from giving to an alma mater, for example, for giving to a school attended by the donor's offspring. The data we used in this article measure giving at a sector level. They also include household characteristics that allow us to investigate the determinants of giving to subsectors.

This article looks at repeated donors to the same broad cause, education including all levels of instruction plus related programs such as libraries and tutoring, using panel data from the Panel Study of Income Dynamics (PSID), which surveys a nationally representative sample of the United States biennially. Data in this study cover charitable giving in the years 2000, 2002 and 2004 and are part of the Center on Philanthropy Panel Study (COPPS), a module of the PSID. By examining donor characteristics associated with repeated contributions to education, it is our aim to distinguish some major determinants making donors persistently give to education and the factors hindering them from doing so.

GIVING TO EDUCATION

The education sector broadly conceived, including schools, post-secondary education, libraries, tutoring programs and so on annually receives the second largest amount of charitable contributions made by all types of donors in the United States, after

religion (Giving USA Foundation, 2009). There is a significant amount of fundraising activity for education, as indicated by the sheer number of institutions raising funds for educational organizations. In 2006–2007, there were more than 4300 post-secondary institutions in the United States (Digest of Education Statistics, 2009a). In 2003, the most recent year for which national data are available, there were approximately 28 380 private K-12 schools in the United States (Digest of Education Statistics, 2009b). The same report shows that in 2005–2006, there were an estimated 14 200 public school districts. All of these entities seek or could seek charitable contributions from student families, alumni, foundations, corporations and the broader community.

According to the COPPS of 2005, 15.6 percent of households gave to education at some level. The average gift was $493 and the median was $100 (Wu, 2009). Among the highest-income households, those with net worth of $1 million or more or annual income of $200 000 or more, the incidence of giving to education in 1 year is about 75 percent, with an average gift of $27 379 (Rooney and Frederick, 2009). James (2008) used data from the several years of the Consumer Expenditure Survey (CEX) to examine various characteristics of educational donors. Like COPPS, the CEX question asked about contributions to educational institutions without specifying the level of education. James found, overall, that donors to education 'had significantly greater income, wealth, and education than other donors'. Although individuals with higher levels of educational attainment support a broad range of charities, James found that educational attainment is a strong predictor of giving to educational organizations. The probability of giving to education greatly increased with each successive educational level attained: 22 percent of individuals holding graduate degrees supported educational institutions, compared with less than 1 percent of those having no high school degree. James and Wiepking (2008), using panel data from the 2005 wave of Giving in the Netherlands, found that the presence of children in the home was an important predictor of educational giving in that country.

For giving to higher education specifically, Volkwein *et al* (1989) propose that alumni donations to higher education reflect a combination of factors, grouped under 'capacity' and 'motivation'. Capacity reflects the income, wealth and achievements of alumni, whereas motivation derives from personality and values. Under this model, personality and values are less likely to change during a relatively short 5-year span (promoting persistence in giving among those who are motivated to give), whereas capacity could change (suggesting that persistence, once motivation is determined, is solely a function of socioeconomic characteristics). Meer and Rosen (2009) find that at least some donations to higher education institutions are motivated in part by the desire of parents for their own offspring to attend a parent's alma mater. This focuses importance on studying giving over time and on looking at family composition as dimensions of motivations for giving to higher education. Following Meer and Rosen, we might expect giving

to higher education to increase in amount or frequency as a child or children in the family near the age associated with high school graduation and entrance into college or university (17 or 18, typically).

Weerts and Ronca (2008) employed classification and regression tree methodology to study alumni giving to higher education institutions using alumni records from a public research university. Consistent with other work, alumni donation amounts were related to household income and the degree received. In addition, Weerts and Ronca found that religious background and the number of institutions competing for alumni gift dollars were also associated with alumni giving. This suggests that donors who give persistently to non-education charities might be less likely to give persistently to education charities.

However, prior research about education giving has not examined family structure changes (change of marital status or number of children and so on) and has been restricted to only one-time cross-sectional analysis.

RESEARCH ABOUT PERSISTENCE IN GIVING

Persistence in giving to any type of charity has been little examined. Much of the existing work on education giving focuses on one-time donors to education, because there are only a few panel studies that ask about giving to education over time. Even the work on the Netherlands, which used panel data, used cross-sectional analysis methods not panel methods to study education giving. Wunnava and Lauze (2001) looked at persistent and occasional giving to education, but their study was restricted to donors to one small liberal arts college over time and focused on individual attributes such as college major, participation in varsity athletics, residence in a state with an alumni chapter and service as a volunteer.

National panel data used here do not contain these measures of engagement with some specific institution. However, for practical purposes in fundraising, one of the more useful things to learn would be what donor traits are associated with repeated giving to education – that is, are there traits that can help identify people who are likely to be persistent donors to the particular cause? Or are there traits or events that could identify people who are likely to stop being persistent donors, as Wu *et al* (2007) found that donors who faced marital separation or divorce were highly likely to switch from giving to not giving in the period following the split. Thus, this work focuses on which education donors, if any, are persistent (repeated donors) over time. The analysis is not focused on giving to higher education, but to all levels of education.

RESEARCH QUESTIONS

It is well documented that income and tax policies influence charitable giving generally (see Vesterlund, 2002 for a review). This project controls for these and other factors to explore whether households with *a prior* history of giving to education, a 'past behavior' that indicates both capacity and motivation, are more or less likely to continue to give to education. The following five hypotheses are proposed to test some specific capacity (income, substitution effect between education and other secular subsectors) and

motivation indicators (education attainment, number and age of children).

Hypothesis 1: Persistence in giving to education is associated with family income, consistent with findings that giving to education in any one year is associated with family income (Rooney *et al*, 2005; James, 2008) and with the finding that persistence in total giving is associated with family income (Wu *et al*, 2007).

Hypothesis 2: Persistence in giving to education is associated with education attainment, consistent with the finding that higher levels of education are associated with giving to education (and all other types of giving) in any one year (Rooney *et al*, 2005; James, 2008). Because of the personal relationship donors to education typically have with their alma mater (Leslie and Ramey, 1988) or even with their children's school, giving to education will be more likely to be persistent among donors with higher education.

Hypothesis 3: Persistence in giving to education is associated with having school-aged children in the household. This hypothesis tests and extends in a US context findings of James and Wiepking, (2008), using data from the Netherlands, that having children in the household is associated with giving to education in any one year.

Hypothesis 4: Persistence in giving to education is associated with having children nearing college entrance decisions, following Meer and Rosen (2009). The PSID data do not include the ages of all children in the household. As a proxy for having children in the high-school age range, we use the age of the youngest child living in the household.

Hypothesis 5: Because households face a variety of charitable choices in any one year, we expect the substitution effect between persistence of educational giving and giving to other secular causes to be dominant: households who are persistent donors to education are not likely to be persistent donors to other secular causes and vice versa.

We define persistence as giving in all three waves of the data available: 2000, 2002 and 2004. Recurrent donors gave in any two waves; transient education donors gave just once to education; and non-donors to education did not give to education.

DATA

The PSID began in 1968 and has tracked the same families in regular surveys fielded by the Institute for Social Research at the University of Michigan. This comprehensive study includes extensive questions about household formation, income, employment and wealth. In 2001, the Center on Philanthropy began to sponsor a philanthropy module as part of the PSID. The COPPS includes questions related to household charitable giving and, when time permits, individual volunteering. Giving questions are asked about

contributions to religion, help meet people's basic needs, health, education, youth and family services, environment and animals, international affairs, and other categories of activity.

The data set used in this article is a balanced panel of the most recent three waves (2001, 2003 and 2005) of COPPS data. The survey collects information of giving activity of the year before the wave, namely 2000, 2002 and 2004. The PSID tracks approximately 8000 American households in a single wave. However, due to sample attrition and excluding those households that were not asked the philanthropy module, the total number of households tracked in COPPS through all the three waves is 5702.

PSID oversampled low-income households and thus a family weight variable is provided with each wave to adjust the sample to be nationally representative. In order to correct for the oversampling, we use the most recent 2005-year family weights throughout the article, both in descriptive and regression analysis.

METHODOLOGY

We mainly employ regression models to analyze the data and answer the main research questions. First, we estimate a series of ordinary Probit models to investigate the determinants of being an educational donor in any single wave. In the models of 2003 and 2005 waves, giving to education in previous years are included as independents, which allows us to test the effect of previous giving on future giving decisions.

Then we construct the educational giving frequency defined through the three waves as a random event with possible outcomes of 0, 1, 2 or 3 in the COPPS waves of 2001, 2003 and 2005, all of which are about giving in the prior year. Based on educational giving frequency, we distinguish four different types of educational donors:

- The non-donor to education: never donated to education during the survey period.
- The transient education donor: donated only once to education during the survey period.
- The recurrent education donor: donated twice to education, whether in consecutive waves or not.
- The persistent education donor: donated to education for all the three consecutive waves.

The education non-donors can further be divided into two subgroups by whether they donated to other causes: one group is non-donors to any type of charity and the other group contains non-donors to education who are donors to other causes. We also create a variable representing frequency of giving to any secular cause other than education, with values of 0, 1, 2 or 3, which in turn means giving respective times among the three waves to other secular causes.

The empirical analysis focuses on the likelihood of being a persistent donor and the frequency of giving to education and to other secular causes. First, we estimate ordinary Probit models on being a persistent educational donor and compared the patterns with models of being a persistent donor to non-education secular causes. We also divide the sample to identify a highly educated portion, defined as those respondents with education level of some college

Table 1: Summary of different types of donors

Types	*N*	*Percentage (%)*
Persistent donor, gave to education 3 years	346	6.07
Recurrent donor, gave to education 2 years of 3	435	7.63
Transient donor, gave to education 1 year of 3	847	14.86
No donations to education, but to other causes	3212	56.32
No donations at all	862	15.12
Total	5702	100.00

or above. Giving by this subsample is examined separately and compared with the analysis for the full sample. Furthermore, we adopted Poisson, Negative Binomial and ordered Probit methods, which allow us to use the frequency of giving to education as the dependent variable. We compare the results to ordinary Probit models to see whether we get consistent findings.

PROFILE OF DONORS TO EDUCATION

The weighted summary results below show that the sample consists of 346 persistent donors who gave in all three waves (6.07 percent), 435 recurrent donors who gave in two of the three waves (7.63 percent), 847 transient donors, who gave once to education (14.86 percent) and 4074 persistent non-donors (71.44 percent), most of whom gave to other types of charities but not to education. Table 1 and Figure 1 show the share of each type of donor within a nationally representative sample of households headed by adults.

There are some variations by race in the probability of being a persistent donor to education. Table 2 shows white and black alumni with bachelor's degrees and those with advanced degrees based on whether they are persistent, recurrent, transient or non-donors to education.

Among white and black bachelor's degree recipients, similar percentages are persistent donors (14.5 percent and 14.8 percent, respectively). Among people with graduate degrees (includes MD, JD and so on), 19.9 percent of whites and 14.8 percent of blacks are persistent donors to education. These results are before controls for income and other characteristics.

INDEPENDENT VARIABLES

We are most interested in whether or not a household gives to education throughout the three waves and if not, in the frequency of giving to education. Other variables included in the study as covariates are a number of household and individual factors that prior researchers have shown to be important in explaining and predicting who might be donors and the amount they donate. These factors are education attainment (Brown, 2005), age, income and wealth, marital status, gender and race (Rooney *et al*, 2005), religious affiliation (Wilhelm and Steinberg, 2003), and number of dependent children (shown to be associated with giving to some types of charities, especially education by Yoshioka (2006)). Previous studies by Randolph (1995) show that household

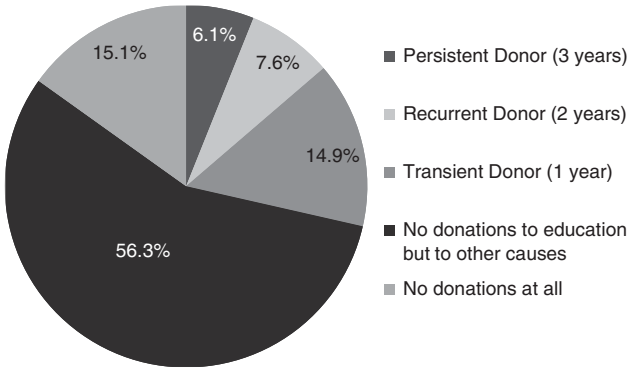

Figure 1: Share of different types of donors.

Table 2: Incidence of frequency of giving to education by education and race. Three waves of the Panel Study of Income Dynamics (PSID)

	White and bachelors	*Black and bachelors*	*White and graduate*	*Black and graduate*
Persistent donor (three times to education)	14.49%	14.84%	19.92%	14.82%
Recurrent donor (two times to education)	15.49%	7.50%	19.54%	15.91%
Transient donor (one time to education)	20.03%	22.44%	21.16%	7.68%
Non-donor (no gifts to education)	49.98%	55.23%	39.38%	61.60%
N	639	106	405	46

giving behavior is determined more by permanent income than transient income. Therefore, in our study, we use household permanent income, calculated by taking the average of the annual incomes of the three waves, instead of any one year of income, which is more likely to be transient. Employment status, US region of residence, tax itemization and health status variables are also available in the PSID. We expect these to affect charitable giving and correlate with income, age and so on. Excluding them from the analysis may lead to omitted variable bias, so they are also included as independent variables.

In analysis, we highlight two sets of variables as important factors that can predict the different frequencies of education giving. One set contains the variables we are interested in using to test the hypotheses:

- socioeconomic characteristics: permanent household income and wealth; and
- personal and household characteristics: education level of household head and number of dependent children and age of the youngest child.

In addition, a number of control variables were included:

- Age, gender, race, marital status, health situation, religious affiliation, religious attendance, employment status, US region of residence, tax itemization status and some household formation and labor

Table 3: Profiles of types of donors in 2001 (beginning of the duration)

	Persistent donor	*Recurrent donor*	*Transient donor*	*Non-donor to education*	*Overall*
N	346	435	847	4074	5702
Percentage of sample	6.07	7.63	14.86	71.44	100.00
Mean donation to education ($)	864	278	228	0	495
	(3765)	(740)	(525)	(0)	(2439)
Median donation to education ($)	200	100	100	0	100
Dependent variable					
Frequency of giving to education (years)	3	2	1	0	0.483
	(0)	(0)	(0)	(0)	(0.876)
Independent variables					
Socioeconomic and demographics					
Permanent (Average) Income ($)	134285	103157	82444	54943	67527
	(174435)	(76291)	(86294)	(76995)	(90262)
Wealth – no home equity (in 1000$)	545	342	220	146	196
	(1147)	(2127)	(585)	(781)	(960)
Age	52.04	48.00	48.94	48.34	48.63
	(13.72)	(13.41)	(15.06)	(16.44)	(15.89)
Percentage married	75.11	73.32	65.79	50.15	55.76
	(43.31)	(44.28)	(47.47)	(50.01)	(49.67)
Number of children	0.86	0.91	0.77	0.59	0.66
	(1.13)	(1.11)	(1.06)	(1.04)	(1.06)
Percentage male head	82.34	83.09	80.35	71.11	74.08
	(38.20)	(37.53)	(39.76)	(45.33)	(43.82)
Percentage with bachelor's degree	36.88	31.61	22.31	11.80	16.39
	(48.33)	(46.55)	(41.66)	(32.26)	(37.03)
Percentage with graduate education	33.85	27.75	15.69	6.67	11.27
	(47.40)	(44.83)	(36.39)	(24.95)	(31.62)

Percentage Catholic	27.76	22.00	24.87	24.01	24.22
	(44.86)	(41.47)	(43.25)	(42.72)	(42.84)
Percentage Protestant	50.88	50.21	51.01	55.26	53.97
	(50.08)	(50.06)	(50.02)	(49.73)	(49.85)
Percentage African American	5.29	8.18	9.84	12.94	11.65
	(22.42)	(27.44)	(29.81)	(33.56)	(32.08)
Percentage other non-white races	3.55	7.56	11.30	12.89	11.68
	(18.54)	(26.46)	(31.68)	(33.51)	(32.12)
Percentage itemized tax deduction	72.79	63.62	45.49	25.67	34.39
	(44.58)	(48.17)	(49.83)	(43.68)	(47.51)
Percentage unemployed	0.99	0.75	2.50	4.24	3.52
	(9.89)	(8.66)	(15.63)	(20.15)	(18.42)
Percentage retired	22.32	12.13	18.41	18.28	18.08
	(41.71)	(32.69)	(38.78)	(38.66)	(38.49)
Percentage disabled	0.06	0.70	0.89	2.91	2.27
	(2.44)	(8.34)	(9.41)	(16.80)	(14.88)
Status change measures					
Percentage became unemployed	9.03	11.03	10.21	13.36	12.45
	(28.70)	(31.37)	(30.29)	(34.03)	(33.02)
Percentage have more children	7.27	9.80	11.07	11.92	11.35
	(26.00)	(29.77)	(31.40)	(32.40)	(31.72)
Percentage marital separation	1.13	1.61	2.37	3.71	3.20
	(10.61)	(12.59)	(15.22)	(18.91)	(17.59)

Standard errors in parentheses.

market participation events: having more children, separation, becoming unemployed.

Among these control variables, race and gender are time invariant. Age changes uniformly for everyone. Some of these variables measure the changes during the study period, like event variables for having another child or becoming unemployed. The rest take on different values from wave to wave. The time-varying factors, such as age, marital status, health and so on, are measured at the beginning of the observation period (2001) as the situation at the beginning year is thought to be more exogenous in predicting the future giving behavior of the household. Table 3 below provides the summary statistics.

From Table 3, we see that the average frequency of giving to education is 0.483, less than once. It means that on average, a household in the sample gave to education less than once during the three waves observed. Moreover, we find some interesting trends among the donors who did not give to education (education non-donors), and those who gave one, two or three times. (Those who gave three times are persistent education donors.) As we look at the profiles from the education non-donors to the persistent donors, there exists a clear association between family income, wealth, rate of marriage, having a bachelor's degree, graduate level education and being a tax itemizer. It looks like persistent educational donors are more likely to be wealthier, married, tax itemizers, and have higher income and a higher level of education. They have, on average, $134 285 in permanent income and $545 000 in family wealth, not including principal home equity, compared to non-donors who have permanent income of $54 943 and average wealth of $146 000. Among persistent education donors, 36.88 percent finished their education with a bachelor's degree and 33.85 percent continued to complete a graduate degree. The counterparts for non-education donors are 11.80 percent and 6.67 percent, respectively.

Additionally, compared with education non-donors, persistent education donors have a lower fraction of African American, other races, disabled household head and those experiencing marital separation. The other races include Asian, Hispanic, American Native and others, and they are combined into one group because of small individual sample sizes. Racial differences are present in the descriptive statistics, and we will further test them after controlling other factors in regression analysis. There is no obvious pattern in heads' religious affiliation on giving frequency.

CORRELATION ANALYSIS

Hypothesis 5 asks about the relation between persistence in educational giving and persistence in giving to all other secular causes, which excludes giving to religion (congregations, ministries and so on). Secular causes examined include health, helping meet other people's basic needs, combined purposes (United Way, Jewish federation, donor-advised funds) and others.

In order to test how persistence in giving to education interrelates with persistence in giving to other secular causes, we conducted a

Table 4: Correlation table of giving to education and other secular causes

	Frequency of giving to education	*Persistent educational donor*
Frequency of giving to secular causes except education	0.404***	0.234***
	(0.000)	(0.000)
Persistent donor to non-education secular causes	0.397***	0.268***
	(0.000)	(0.000)

***$P<0.001$.
P-values in parentheses.

correlation analysis using the giving frequency variables and dummy variables of being persistent donors to each of the two types. A donor jointly decides giving to education or giving to other secular causes in any given year, which makes the persistence of giving to either type in the 5-year span affect each other simultaneously (they are endogenous). Including such endogenous variables as independents will cause bias in regression estimation. Within the data set, it is hard to find some desirable instrumental variables to help correct for this bias, so we prefer correlation analysis to regressions.

From Table 4, we can see that all the correlation coefficients are positive and highly significant at 0.1 percent level, which shows some evidence that the persistent giving to education and other secular causes are positively correlated. For instance, a persistent educational donor is 26.8 percent more likely to be a persistent donor to other non-education secular causes and if the frequency of giving to education increases, with 40.4 percent chance the frequency of giving to other secular causes will increase as well.

REGRESSION RESULTS

The descriptive statistics already revealed some interesting characteristics of persistent donors, but without controls. For example, the data summary shows that households with heads of household who are African American or of another 'minority' race are less likely to be persistent donors to education. It may be they are not likely to donate consistently due to income or wealth rather than due to different attitudes or motivations for giving to education. In order to isolate the effects of specific characteristics, next we will estimate a series of regression models that allow us to control for other covariates.

Probit regressions for giving in each year with lag terms

Table 5 contains a series of Probit regression models for giving to educational purposes in each year separately. The common demographic and social-economic variables, like age of head of household, gender, marital status, education, household permanent income and so on, are controlled in the models. In the second and third models, we include the lagged dependent variables to check whether prior giving to education affects one's current year giving to education. For example, in the Probit model of giving to education in 2002, giving to education in 2000 is included as an

Table 5: Year-by-year Probit models with lag terms

Independent variables[a]	*Giving to education in 2000*	*Giving to education in 2002*	*Giving to education in 2004*
Head is married (*d*)	0.006	0.017	0.060***
	(0.017)	(0.017)	(0.017)
Head's race			
African American (*d*)	0.019	0.032	−0.004
	(0.021)	(0.023)	(0.020)
Other non-white races (*d*)	−0.023	−0.017	−0.070***
	(0.018)	(0.017)	(0.013)
Head's education			
Some college (*d*)	0.085***	0.044**	0.063***
	(0.019)	(0.017)	(0.018)
Bachelor degree (*d*)	0.211***	0.099***	0.098***
	(0.025)	(0.022)	(0.021)
Post-graduate (*d*)	0.262***	0.154***	0.092**
	(0.032)	(0.029)	(0.031)
Good health head (*d*)	0.028	0.031*	0.005
	(0.017)	(0.015)	(0.017)
Age of youngest child	0.018***	0.013**	0.016**
	(0.005)	(0.005)	(0.005)
Age of youngest child squared	−0.001**	−0.001*	−0.001**
	(0.000)	(0.000)	(0.000)
Head's Religion			
Catholic (*d*)	−0.029	−0.040**	−0.021
	(0.018)	(0.016)	(0.019)
Jewish (*d*)	−0.019	−0.026	0.026
	(0.027)	(0.027)	(0.039)
Protestant (*d*)	−0.027	−0.029	−0.028
	(0.019)	(0.017)	(0.019)
Other religions (*d*)	−0.028	0.026	0.004
	(0.024)	(0.053)	(0.046)
Head is unemployed (*d*)	−0.006	−0.047*	−0.081***
	(0.041)	(0.024)	(0.020)
Head is retired (*d*)	0.058*	0.044	0.003
	(0.027)	(0.024)	(0.022)
Log of permanent income	0.056***	0.044***	0.039***
	(0.009)	(0.010)	(0.010)
Tax itemizer (*d*)	0.081***	0.055***	0.033*
	(0.014)	(0.013)	(0.013)
Giving to education in 2000	—	0.284***	0.184***
	—	(0.023)	(0.022)
Giving to education in 2002	—	—	0.258***
	—	—	(0.024)
N	5647	5700	5637
Pseudo R^2	0.198	0.258	0.308

[a]Independent variables are measured at the same year with the dependent variable, respectively.
*$P<0.05$, **$P<0.01$, ***$P<0.001$.
(*d*) for discrete change of dummy variable from 0 to 1.
Marginal effects reported; robust standard errors in parentheses.

independent variable, and in the 2004 giving model, giving in 2000 and 2002 are both controlled.

The table shows only variables attaining statistical significance. Other control variables not listed in the table include wealth of household without equity in a primary residence, marital status, frequency of religious attendance, areas of residence (Northeast, North Central, South or West) and age of head of household. From the table we can see a similar pattern among the three models. Educational attainment has very strong and statistically significant positive effects on giving to education in all three waves. Religious affiliation is largely insignificant, except that all else equal, Catholics are predicted to be less likely to give to education than non-religious households are in 2002. The natural logarithm of permanent income and tax itemizer status are both statistically significant at the 0.1 percent level with a positive sign in all models, though the marginal effect is not very large in magnitude.

The key variables of interest are the lagged giving variables, which are found to be strongly associated with giving in the current year. In the second model, giving to education in 2000 is associated with a 28 percent increase the probability of giving to education in 2002. In the third model, giving to education in 2000 and 2002 are associated with increased probabilities of giving to education in 2004, at 18 percent and 26 percent, respectively. The lag term that is closer to the current year has a larger effect, as expected. The results indicate that a household giving to education in 1 year is more likely to give in the following years, and thus is possibly more persistent.

Probit regressions of persistent donors

Table 6 shows the ordinary Probit models of the likelihood that a household being persistent donor to education and the likelihood that a household being persistent donor to other secular causes except education. Here the models of persistent giving to non-education secular causes are estimated as the reference groups, to which we compare the education persistent giving models. We estimate the two types of persistent giving models, for both the full sample and a highly educated (some college or above) subsample separately. In this way, we can distinguish the giving pattern of highly educated folks from that of the full sample.

Column 1 gives the regression results for educational donors using the full sample and column 2 is the counterpart for the highly educated subsample. Columns 3 and 4 are the full sample and highly educated subsample regressions for persistent donors to other non-education secular causes. For both sample models, the sample size in the regression is 5647, which is a little smaller than the total sample size of the data set, owing to some missing data entries within the independent variables.

When we exclude those with high school or less education and unknown education background, the sample size shrinks to 2582 in the highly educated subsample model for non-education donors. In the subsample model for education donors, the variable 'head is disabled' is omitted due to colinearity, which leads to a further sample

Table 6: Probit models for being persistent donors to two types

Independent variables	*Persistent donors to education*		*Persistent donors to non-education purposes*	
	Full sample	*High education subsample*	*Full sample*	*High education subsample*
Head is male (*d*)	−0.020	−0.067*	−0.133***	−0.182***
	(0.011)	(0.032)	(0.032)	(0.040)
Head is married (*d*)	0.004	0.008	0.072*	0.097*
	(0.007)	(0.019)	(0.028)	(0.039)
Head's race				
African American (*d*)	0.002	0.013	−0.072*	−0.018
	(0.008)	(0.026)	(0.030)	(0.049)
Other non-white races (*d*)	−0.019***	−0.058***	−0.151***	−0.187***
	(0.004)	(0.012)	(0.028)	(0.047)
Head's education				
Some college (*d*)	0.032***	—	0.106***	—
	(0.010)	—	(0.025)	—
Bachelor degree (*d*)	0.093***	0.073***	0.192***	0.094**
	(0.019)	(0.018)	(0.028)	(0.029)
Post-graduate (*d*)	0.122***	0.100***	0.215***	0.122***
	(0.024)	(0.024)	(0.034)	(0.033)
Number of children	0.004	0.016*	−0.007	0.017
	(0.002)	(0.007)	(0.012)	(0.018)
Head's Religion				
Catholic (*d*)	−0.006	−0.022	−0.009	−0.051
	(0.007)	(0.018)	(0.034)	(0.047)
Jewish (*d*)	−0.009	−0.033	0.163*	0.149*
	(0.007)	(0.018)	(0.068)	(0.070)
Protestant (*d*)	−0.006	−0.019	−0.001	−0.047
	(0.007)	(0.020)	(0.031)	(0.043)
Other religions (*d*)	−0.021***	−0.060***	−0.006	−0.052
	(0.004)	(0.011)	(0.045)	(0.065)
Head is retired (*d*)	0.021	0.052	0.107**	0.104
	(0.011)	(0.030)	(0.039)	(0.056)
Head is disabled (*d*)	−0.018**	—	−0.114	−0.197
	(0.006)	—	(0.068)	(0.155)
Living area				
North Central (*d*)	−0.010*	−0.030*	−0.092***	−0.068
	(0.005)	(0.013)	(0.027)	(0.040)
South (*d*)	−0.007	−0.016	−0.080**	−0.098*
	(0.005)	(0.015)	(0.027)	(0.039)
West (*d*)	−0.007	−0.021	−0.080**	−0.085*
	(0.005)	(0.015)	(0.029)	(0.043)
Log of permanent income	0.021***	0.050***	0.192***	0.189***
	(0.004)	(0.010)	(0.020)	(0.028)
Tax itemizer (*d*)	0.022***	0.058***	0.288***	0.262***
	(0.006)	(0.014)	(0.021)	(0.027)
Family had more children (*d*)	0.001	−0.000	0.068*	0.128***
	(0.007)	(0.019)	(0.028)	(0.039)
Separation (*d*)	−0.017*	−0.041	−0.095*	−0.195*
	(0.007)	(0.025)	(0.048)	(0.077)
N	5647	2558	5647	2582
Pseudo R^2	0.239	0.168	0.268	0.225

*$P<0.05$, **$P<0.01$, ***$P<0.001$.
(*d*) for discrete change of dummy variable from 0 to 1.
Marginal effects reported; robust standard errors in parentheses.

reduction of 24 observations to 2 558. The variable 'some college' for the household head's education level is omitted from the subsample models as a reference group for education levels. Marginal effects are evaluated at the sample mean levels; these are reported instead of the raw coefficients for ease of interpretation.

The compact table shows only variables with statistical significance. Other control variables not listed include change in employment status, household wealth without equity in primary residence, marital status, age of youngest child, general health status of head and age of head of household.

Comparing the two models for persistent education donors, we find that major determinants of giving persistence are relatively robust. Household head's educational attainment, permanent income and tax itemization are the main positive determinants. Being of another race, other religion or separated from a spouse are major negative determinants. These factors are statistically significant and of the same sign in both models, though the magnitude of the coefficients differs. Marginal effects are larger in the highly educated model. Being a household head with an 'other' race predicts a 5.8 percent lower probability for being a persistent donor to education compared with White in the highly educated subsample, while it is a lower probability of 1.9 percent in the full sample model. Heads affiliated with other religions (including Orthodox and non-Christian) are predicted to be 6.0 percent less likely to be persistent donors than the 'no religion' heads in the highly educated model and 2.1 percent less likely in the full sample model. Tax itemization status is a very important predictor for persistence. In the highly educated model, itemizers are 5.8 percent more likely to be persistent donors than non-itemizers are and in the full sample model, are 2.2 percent more likely. Household heads with a bachelor's degree and those with a graduate-level education are 9.3 percent and 12.2 percent, respectively, more likely to be persistent donors than those with an education of high school or less, as shown in the full sample model. In the highly educated model, the benchmark is those with some college education, and the respective marginal effects for bachelor's degree and graduate degree are 7.3 percent and 10.0 percent. Marital separation is negative and significant in both models, indicating that families that experienced divorce or separation are less likely to be persistent donors, at least in the comparatively short term of the 5 years covered by these data. Some variables, such as household head is male and number of children in household, are significant in the highly educated model but not in the full model, which reveals the heterogeneity of the two groups. For the highly educated group, households with male heads are 6.7 percent less likely to be persistent donors to education than those with female heads and at the mean level, having one more child living in the home is associated with a 1.6 percent higher probability of being persistent.

Compared with the persistent education models, the two models for persistent donors to other secular causes show very similar patterns: heads with more education, higher

permanent income and tax itemizers are more likely to be persistent. The main distinction is the regional difference and effect of more children. Residents in the North Central, South and West regions of the United States are less likely to be persistent donors to other secular causes except education than are residents of the Northeast. The effect of living in South and West endures in the highly educated subsample model. Previous research (Center on Philanthropy, at Indiana University, 2003) shows that households in the Northeast have a very high donation rate for secular purposes. Thus, we also ran *t*-tests for differences between North Central, South and West regions. The results show no significant differences exist among North Central, South and West regions, although all are different from the Northeast. The other distinctive finding between the educational persistence model and the model of persistent giving to secular purposes other than education is that having more children within the 5-year span is associated with a higher probability of being a persistent donor to non-education purposes, but does not affect the education donor persistence.

Poisson, Negative Binomial and ordered Probit regressions

In the previous section, the ordinary Probit models provided some interesting findings about the determinants of being a persistent donor; however, ordinary Probit does not allow for investigating the patterns for other donation frequencies (1 and 2 years donating to education). We also want to test the consistency of the findings using other model specifications. The following models can be applied to categorical variables, not just binary variables as for the ordinary Probit model. In these models, the giving frequency from 0 through 3 serves as the dependent variable, and we include the same set of independent variables as used in the preceding models. Poisson, Negative Binomial and ordered Probit models are estimated sequentially under different presumptuous probability distributions, which allows us to compare the model fits among these specifications.

Given the 5-year period of the study, the frequency of giving to education is a typical count variable. Each household is surveyed three times in the data set, so the maximum possible count is three, and the smallest count is zero. Count data usually follow a Poisson distribution and the Poisson regression assumes a Poisson distribution for the count dependent variable. However, the Poisson distribution features equal mean and variance, which does not hold for all count variables. In our case, the mean of educational giving frequency is 0.48 and the variance is 0.77, so the variance is about 1.5 times the mean, which shows some evidence for over-dispersion. A general treatment for over-dispersion is to fit a Negative Binomial regression. The likelihood-ratio test of over-dispersion rejected the null hypothesis ($P < 0.001$) in favor of the alternative that there is an over-dispersion problem for the Poisson model in this instance. Thus, the Negative Binomial regression is preferred over the Poisson model.

In addition to the count variable models, we also fitted an ordered Probit model as there is a natural ordering in giving to education zero,

one, two or three times. In this case, the ordered Probit model (Greene, 2003, p. 736) is a better choice to examine the factors that trigger the membership of the donors into the giving frequency types. An ordered Probit model is a generalized Probit model, in which several Probit models are fitted concurrently and the probability for each outcome is jointly determined. Changes in probabilities of each category are distributed among all outcomes and must sum up to zero.

Table 7 shows the regression results from the three models, in which the sample sizes are the same 5647. In columns 1 and 2, the raw coefficients are reported for the Poisson and Negative Binomial models. In column 3, we report the raw coefficients from the ordered Probit model; the last column shows the marginal probabilities, measured at the sample mean levels, of falling into the persistent donor category. For succinctness, we discuss only variables that achieved statistical significance. Looking at the three different models, we find some common results. For the significant factors, such as educational attainment, permanent income, tax itemization, separation and so on, that we found in the previous Probit regressions, the new results in Table 7 are highly consistent with each other regardless of the model specifications, especially for Poisson and Negative Binomial models. Although the likelihood-ratio test shows a preference for the Negative Binomial model, the coefficients and significance levels are very close to each other. Through the ordered Probit model we obtained similar results with the count regression models, both in the signs of the coefficients and the statistical significance levels. Therefore, we are confident that the ordered Probit model is well specified, and given the ordered nature of the dependent variable, we mainly rely on it for inference.

EXAMINATION OF HYPOTHESES FROM ANALYSIS RESULTS

Now we are ready to test for the hypotheses raised before. According to the marginal effects of being a persistent donor, we confirmed that persistence is associated with being married, higher education attainment, high household income and being a tax itemizer.

For Hypothesis 1, we find support for the hypothesis that higher family income is associated with persistence, but we do not find support for family wealth as a determinant of persistence in giving to education.

For Hypothesis 2, any level of education beyond high school (some college education, bachelors' degree and graduate education) has a highly significant ($P < 0.001$) positive effect on persistence in giving to education, and similarly in persistence of giving to other non-education secular causes. The effect is increasing with the education level, as shown in the marginal effect model in Table 7, that families in which heads ended up with bachelors' degree and heads received graduate education are, respectively, 8 percent and 11.6 percent more likely to be persistent education donors than those heads with high school or less education. Both are greater than the 3.1 percent, the effect associated with some college education. Thus donors with higher

Table 7: Regression models of educational giving frequency

Independent variables	*1 Poisson*	*2 Negative Binomial*	*3 Ordered Probit coefficients*	*4 Persistent donor (Marginal effect)*
Head is male (*d*)	−0.285*	−0.281*	−0.196*	−0.013*
	(0.119)	(0.120)	(0.086)	(0.006)
Head is married (*d*)	0.206*	0.184	0.119	0.007
	(0.100)	(0.101)	(0.073)	(0.004)
Head's race				
African American (*d*)	0.133	0.144	0.122	0.008
	(0.111)	(0.114)	(0.083)	(0.006)
Other non-white races (*d*)	−0.362***	−0.352**	−0.224**	−0.011**
	(0.108)	(0.110)	(0.083)	(0.004)
Head's education				
Some college (*d*)	0.636***	0.616***	0.404***	0.031***
	(0.086)	(0.087)	(0.060)	(0.006)
Bachelor degree (*d*)	1.073***	1.060***	0.785***	0.080***
	(0.088)	(0.089)	(0.067)	(0.011)
Post-graduate (*d*)	1.209***	1.207***	0.954***	0.116***
	(0.091)	(0.093)	(0.077)	(0.016)
Number of children	0.066*	0.061	0.054*	0.003*
	(0.031)	(0.032)	(0.027)	(0.002)
Age of youngest child	0.095***	0.106***	0.102***	0.006***
	(0.022)	(0.023)	(0.020)	(0.001)
Age of youngest child squared	−0.005***	−0.006***	−0.006***	−0.000***
	(0.001)	(0.001)	(0.001)	(0.000)
Head's Religion				
Catholic (*d*)	−0.266**	−0.275**	−0.244**	−0.013***
	(0.091)	(0.096)	(0.082)	(0.004)
Jewish (*d*)	−0.196	−0.167	−0.062	−0.004
	(0.130)	(0.141)	(0.141)	(0.008)
Protestant (*d*)	−0.197*	−0.202*	−0.194**	−0.012*
	(0.084)	(0.087)	(0.075)	(0.005)
Other religions (*d*)	−0.205	−0.185	−0.138	−0.007
	(0.139)	(0.147)	(0.115)	(0.005)
Head is retired (*d*)	0.260*	0.278*	0.243**	0.017*
	(0.104)	(0.109)	(0.094)	(0.008)
Living area				
North Central (*d*)	−0.263***	−0.271***	−0.244***	−0.013***
	(0.076)	(0.080)	(0.069)	(0.004)
South (*d*)	−0.168*	−0.173*	−0.162*	−0.009*
	(0.074)	(0.079)	(0.068)	(0.004)
West (*d*)	−0.104	−0.114	−0.105	−0.006
	(0.075)	(0.079)	(0.070)	(0.004)
Log of permanent income	0.399***	0.449***	0.380***	0.023***
	(0.046)	(0.051)	(0.043)	(0.003)
Tax itemizer (*d*)	0.445***	0.439***	0.364***	0.025***
	(0.065)	(0.066)	(0.052)	(0.004)
Separation (*d*)	−0.614**	−0.627**	−0.489**	−0.019***
	(0.226)	(0.224)	(0.151)	(0.004)
N	5647	5647	5647	5647
Adjusted/Pseudo R^2	N/A	N/A	0.153	0.153

*$P<0.05$, **$P<0.01$, ***$P<0.001$.
(*d*) for discrete change of dummy variable from 0 to 1.
Marginal effects reported; robust standard errors in parentheses.

education are the most likely to be persistent donors to education.

For Hypothesis 3, the PSID data have measures on the number of children aged 0–17 and the age of the youngest child. After controlling for the age of the youngest child at home, the number of children achieves statistical significance in the Poisson, ordered Probit model and the ordinary Probit model for the highly educated sample. Holding all other factors constant, though for the overall sample, the effect of having one more child in 2001 is small, just 0.3 percent higher probability to be persistent, for the highly educated sample, the effect is 1.6 percent. The results partially support the Hypothesis 3, that persistence of education giving is associated with having dependent children living in the household, but we cannot be sure about the effect of school age children due to data restriction.

In Hypothesis 4, as with Hypothesis 3, there are data limitations looking at the number of high-school aged children in the home. We use the data for the number of children aged 0–17 in the household and the age of the youngest child. When we use the quadratic form age of youngest child, the variable shows a significant concave effect in the ordered Probit model. The probability to be a persistent donor to education increases with the age of the youngest child until the peak at 8.6, after that the probability decreases with the age. However, it helps little in testing the hypothesis, as we do not know whether the other children are of the high school ages. Thus, we find little support for Hypothesis 4, that persistence is associated with having a child in the high school years, mainly due to data constraint.

As is stated in Hypothesis 5, households face a variety of charitable choices in any one year, so we expect households who are persistent donors to education are less likely to be persistent donors to other secular causes. However, the correlation analysis results do not support this hypothesis. As shown in Table 5, persistence in giving to education and persistence in giving to other types of secular causes are positively correlated, such that individuals who are persistent in giving to education are more likely to be persistent in giving to other subsectors, and vice versa.

The results suggest that higher education is strongly associated with persistence in both giving to education and all other secular charities. While not one of the hypotheses, marital separation is the only significant change measure in all model specifications. It has a slightly negative effect on persistence. If a household head was divorced or separated during the 5-year duration, the probability to be a persistent donor decreased by 2 percent. Among the variables introduced as controls, 'other races' is consistently negatively significant for persistence in all models.

DISCUSSION AND FURTHER RESEARCH

For a fundraising professional in higher education, recognizing that just over 6 percent of the general population gives persistently to any level of education and that about 15 percent of the population with a higher education degree gives persistently to any level of education can help improve understanding of the

11 percent of alumni who give to their alma mater in any one year (Council for Aid to Education, 2009). Based on COPPS results, in any one year, about 16 percent of households give to education, compared with 29 percent who give to human services or 46 percent who give to religion (Wu, 2009).

Understanding that transient (once) or recurrent (twice) donors to education are likely to have lower income and lower education levels than persistent donors may help fund raisers plan their fundraising appeals on a different frequency, to ask for smaller amounts more often, or to link appeals with particularly significant events in the life of the institution. It is clear that donors to education who give occasionally are important to overall education funding, as they outnumber the persistent donors who give annually.

The results in this article corroborate the theory proposed by Volkwein *et al* (1989) that giving to higher education reflect both donor 'capacity' and 'motivation' in the context of giving to overall education at all levels over time. We find out capacity variables like family permanent income and motivation variables, such as education attainment, number of children at home, are positively associated with educational giving persistence. In addition, significant and positive correlation (0.27, $P<0.001$) between persistence in giving to education and to other secular causes shows some evidence that the motivation variables are stronger determinants of giving persistence than the capacity variables. Because for any given year, donor capacity is fixed, we expect giving to different subsectors will substitute each other, but the data support positive correlation, which indicates some common underlying motivations, especially the education background (as shown in Table 6), determine giving to different causes simultaneously. However, owing to lack of good instrumental variables, we did not test the partial correlation after controlling motivation and capacity variables in regression analysis. In future research, it would be ideal to test whether the positive correlation holds in regressions with some proper instrumental variables.

The results concerning number of children and age of youngest child have to be interpreted with some caveats. We have some support that the number of the children in the household is positively associated with a higher probability of giving persistently to education. However, due to data restriction, there is no firm evidence for or against the presence of children in school age as a driver of persistent giving to education. For fund raisers, it could help to know more about whether having an infant or pre-schooler at home increases or decreases the probability of alumni giving; whether having a high school student living at home is associated with higher or lower rates of alumni participation in annual fund giving; and whether small or large families are more or less likely to be donors, all other considerations held constant. These are possibilities for future research if data sets provide more information on number of children and age of each child in household.

We confirm that marital separation is negatively associated with persistent

giving to education, but other household status changes (becoming unemployed or adding a child) are not associated with persistence (or transition from donor to non-donor to education). The potential for future research here is that with more waves of COPPS to be released in future years (2007, 2009 and 2011 are in development), researchers will be able to examine whether or not a former donor returns to regular giving to education after a period adjustment for the family dissolution.

It is perhaps not surprising that income, but not wealth, is positively associated with a greater probability of being a persistent donor. To the extent that persistent donors contribute in response to annual appeals, it is reasonable that they are making donations from annual resources (income) rather than wealth. We would expect donations from wealth to be less frequent, based on Rooney and Frederick (2006), who find that, on average, high-net worth households make major gifts every 5 years.

Among the control variables, being of 'other race' (Hispanic, Asian, American Native and others) appears consistently as negatively associated with persistent giving to education. Osili and Xie (2009) find that recent immigrants give less to formal charities, and it could be that our results reflect immigrant status, rather than the impact of racial or ethnic heritage. It is possible, for example, that highly educated immigrants were educated in state-supported universities in their countries of origin and are not asked to give by their alma maters. Controlling for immigrant status and other indicators of residential mobility is a possibility for future research in this approach.

In addition, we have no information about communications received from educational organizations or other types of charities, so only one side of the equation is available. We cannot be certain of the substitution donors are making, if one. To what extent are they giving to other types of charities instead of education? Is higher education a marker for persistence in giving to education because of the frequency of appeals, compared with the frequency of appeals from K-12 educational institutions or for other reasons associated with the donors' experiences in university or college or identification with a 'community' of classmates?

The level of engagement in campus life (and which forms of campus life) has been shown to be important in giving to higher education (Wunnava and Lauze, 2001; Clotfelter, 2003). For persistence in giving to higher education, examination of these individual traits in combination with indications of household income, other household giving and family characteristics could be an important addition to understanding the intersection of 'capacity' and 'motivation'.

ACKNOWLEDGEMENTS

We thank our Director of Research, Dr Una Osili, and two anonymous reviewers for their comments and suggestions.

NOTE

1 The Council for Aid to Education (CAE) reports $31.6 billion in charitable contributions to higher education institutions in the

2007–2008 fiscal year, $14.8 billion of which comes from alumni and other individuals (2009). The National Association of Independent Schools estimates $1.08 billion in annual giving to its members (2009), and school foundations formed for public school districts receive perhaps $60 million in contributions, according to a spokesperson quoted by the Public Education Network (Wolfe, 2008).

REFERENCES

Brown, E. (2005) College, social capital and giving. In: A.C. Brooks (ed.) *Gifts of Time and Money: The Role of Charities in America's Communities*. Lanham, MD: Rowan & Littlefield Publishers.

Center on Philanthropy at Indiana University. (2005) A closer look at giving in New England. Vermont Community Foundation, http://www.vermontcf.org/PDFs/A-Closer-Look-At-New-England-Giving-Nov-2005.pdf, accessed November 2005.

Clotfelter, C. (2003) Alumni giving to elite private colleges and universities. *Economics of Education Review* 22(2): 109–120.

Council for Aid to Education. (2009) Voluntary support for education in 2007–2008, http://www.cae.org, accessed 25 February 2009.

Digest of Education Statistics. (2009a) Table 255: Degree granting institutions, by control and type of institution: Selected years 1945–50 through 2006–2007, http://nces.ed.gov/programs/digest/d07/tables/dt07_255.asp, accessed 25 June 2009.

Digest of Education Statistics. (2009b) Table 83: Number of public school districts and public and private elementary and secondary schools, selected years, 1869–70 through 2005–2006, http://nces.ed.gov/programs/digest/d07/tables/dt07_083.asp, accessed 25 June 2009.

Giving USA Foundation. (2009) *Giving USA 2009: The Annual Report on Philanthropy for 2008*. Glenview, IL: Giving USA Foundation.

Greene, W.H. (2003) *Econometric Analysis*, 5th edn. Upper Saddle River, NJ: Prentice Hall.

James III, R.N. (2008) Distinctive characteristics of educational donors. *International Journal of Educational Advancement* 8(1): 3–12.

James III, R.N. and Wiepking, P. (2008) A comparative analysis of educational donors in the Netherlands. *International Journal of Educational Advancement* 8(2): 71–79.

Leslie, L. and Ramey, G. (1988) Donor behavior and voluntary support for education. *Journal of Higher Education* 59(2): 115–132.

Meer, J. and Rosen, H.S. (2009). Altruism and the child cycle of alumni donations. *American Economic Journal: Economic Policy* 1(1): 258–286.

Osili, U.O. and Xie, J. (2009) Do immigrants and their children free ride more than natives? *American Economic Review* 99(2): 28–34.

Randolph, W. (1995) Dynamic income, progressive taxes, and the timing of charitable contributions. *The Journal of Political Economy* 103(4): 709–738.

Rooney, P. and Frederick, H. (2006) Bank of America Study of High Net-Worth Philanthropy. October 2006, http://www.philanthropy.iupui.edu, accessed 10 June 2009.

Rooney, P. and Frederick, H. (2009) 2008 Bank of America Study of High Net-Worth Philanthropy. March 2009, http: //www.philanthropy.iupui.edu, accessed 10 June 2009.

Rooney, P., Mesch, D., Chin, W. and Steinberg, K. (2005) The effects of race, gender, and survey methodologies on giving in the U.S. *Economics Letters* 86: 173–180.

Sargeant, A. and Jay, E. (2004) *Building Donor Loyalty: The Fundraiser's Guide to Increasing Lifetime Value*. San Francisco, CA: Jossey-Bass.

Vesterlund, L. (2002) Why do people give? In: W.W. Powell and R. Steinberg (eds.) *The Nonprofit Sector: A Research Handbook*. New Haven, CT: Yale University Press.

Volkwein, J.F., Webster-Saft, L., Xu, W. and Agrotes, M.H. (1989) A model of alumni gift giving behavior. Paper presented at the meeting of the Association for Institutional Research, May 1989, Baltimore, MD.

Weerts, D.J. and Ronca, J.M. (2008) Using classification trees to predict alumni giving for higher education. *Education Economics* 17(1): 95–122.

Wilhelm, M. and Steinberg, R. (2003) Patterns of Giving in COPPS 2001. Working paper posted at http://www.philanthropy.iupui.edu.

Wolfe, F. (2008) Districts, schools search for alternative funding streams NCLB, economic slowdown strain general funds, newsletter article. Public Education Network news, 14 May 2008, http://www.publiceducation.org/pen_news/archive/20080514_Districts.asp, accessed 12 June, 2009.

Wu, K. (2009) Key Findings About Charitable Giving Using Center on Philanthropy Panel Study Data from the 2005 Wave of the Panel

Study of Income Dynamics, Working paper posted at www.philanthropy.iupui.edu.

Wu, K., Brown, M.S. and Rooney, P. (2007) Are Donors Stable Over Time? Working paper presented at the 36th conference of the Association for Research on Nonprofit Organizations and Voluntary Action, Atlanta, Georgia, November 2007.

Wunnava, P. and Lauze, M. (2001) Alumni giving at a small liberal arts college: Evidence from consistent and occasional donors. *Economics of Education Review* 20: 533–543.

Yoshika, T. (2006) Patterns of Giving in COPPS 2003. Working paper posted at www .philanthropy.iupui.edu.